



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

EPA Region 5 Records Ctr.

MORANDUM



285904

DATE: March 5, 1981

TO: Sy Levine ID #197 045 AII

FROM: Martin Tippin Date of Investigation: Feb 23, Mar 3

SUBJECT: FACILITY: Process Alliance Partnership

ADDRESS: 608 Railroad St. Joliet, Illinois 60436

CONTACT/TITLE: Don Matschke, Owner Charles Guidry, Manager

STATUS, PREINVESTIGATION:

<input type="checkbox"/> Major Facility (Workplan)	<input type="checkbox"/> Task Force, A	<input type="checkbox"/> NSPS, F
<input checked="" type="checkbox"/> Quarterly Report	<input type="checkbox"/> On Program B	<input type="checkbox"/> Hydrocarbons, G
<input type="checkbox"/> Form 2	<input checked="" type="checkbox"/> Violator, C	<input type="checkbox"/> Coal Proc. Plant H
<input type="checkbox"/> Other, X	<input type="checkbox"/> NESHAPS, D	<input type="checkbox"/> Annual Inspection, I
	<input type="checkbox"/> Waste Incinerator, E	<input type="checkbox"/> Special Request, J

FINDINGS

<input type="checkbox"/> Emission Violation	<input type="checkbox"/> No Violations	<input type="checkbox"/> TAS Checked
<input type="checkbox"/> Permit Violation	<input type="checkbox"/> To Form 2	<input type="checkbox"/> TAS Coded
<input type="checkbox"/> Warning Letter	<input type="checkbox"/> To Quarterly	<input checked="" type="checkbox"/> Form 177
	<input type="checkbox"/> Report	<input type="checkbox"/> Flowform

NARRATIVE:

An inspection was made at the above facility on February 25, 1981 and March 3, 1981. Data was provided by Don Matschke, Owner, of February 25, and by Charles Guidry on March 3.

The following changes have taken place in the facility.

Truck Unloading

All trucks carrying caustic waste or acid into the facility are now being unloaded at one point. At present they are receiving approximately 15,000 gallons of caustic waste per day, though the amount has been as high as 30,000 gallons per day. The caustic is carried to the facility in 4200 gallon tank trucks. For caustic waste unloading a 10 ft hose is connected to the bottom of the truck tank for discharge and a 15 ft hose connects to the top hatch to return vapors. The discharge hose connects to a manifold on the side of the main building. Pumps are located inside the building which pump the waste through a pipe connected to all 9 caustic storage tanks (2X35,000 gal, 2X12,500 gal, and 5X15,000 gal).

Each tank is isolated by a closed valve on the fill line and vapor recovery line, except during filling or drawing off of the tank. The tank selected to be filled has the valves opened manually. The caustic is pumped into the tank and the displaced vapors are forced into the truck.

The trucks are unloaded over a gravel surface. A concrete unloading pad had been considered by P.A.P. but thought unnecessary because the amount of spillage was estimated to be less than half a pint per truck.

Procedure for determining tank fluid levels. At the beginning of the morning shift the 24 inch manhole cover is removed from the tanks thought to be partially empty. A measuring stick is then lowered into the tank. This determines which tanks will be filled. The tank cover is removed approximately 5 minutes per tank on an average of three tanks per morning. The manhole covers are normally secured by 25 bolts, but in order to expedite this operation only 6 bolts are used. This could make the system less tight. The above procedure could be a possible source of odor emissions. The facility plans to place pressure gauges on each tank, so the fluid level can be determined without opening the tanks. The gauges at present have not been installed.

During the inspection of March 3, the manhole covers were being modified. A 6 inch nipple with a cap secured by a butterfly nut was being welded to the center of each 24 inch manhole cover. With these installed the manhole covers can be properly secured and the 6 inch cap easily removed for tank inspection.

Tank Vents

Each tank is equipped with a pop vent. The amount of pressure required to open the vent was not known at the time of the inspection. The vents are more likely to open during warmer weather. They close automatically after the selected pressure has been reestablished. This may be a potential source of odor.

Oil Seperation and Removal

An estimated .01% to .1% of the caustic waste received in oil, which rises to the top of the storage tank. The oil is the component of the waste which carries the odor. The caustic is drawn from the bottom of the tank to the reactor vessel. As new waste is added the oil level continues to build up until it reaches a sufficient level for removal from the tank. This is approximately 18 inches. This is usually determined when an oily sheen is noticed on the top of the mixture in the reacting vessel. Oil removal from the tank is done by removing the 24 inch manhole cover and lowering in a 6 inch hose connected to a vacuum truck. The truck then sucks the oil from the tank. This takes 20-30 minutes, during which time the tank is open to the atmosphere. Oil removal occurs about every three weeks. This procedure may be a source of odors. The oil is taken to American Recovery Systems in Indiana.

Dumpsters

A heavy vinyl and canvas cover placed on a spring metal frame has been installed on the two dumpsters. The covers are secured by heavy rubber straps. They appear effective in controlling odors from the sludge in the dumpsters.

The dumpsters are removed approximately once every week and taken to a land fill by Lockport Trucking.

Reactor Operation

The facility has 5 (5000 gallon each) reactors. Each is equipped with an electrical driven mixer. The operation for each reactor is a batch operation which can be divided into three stages.

1. Mixing stage - approximately 40 minutes
 - a) 3800 - 4000 gallons of caustic is pumped into one of the reactors.. There is a closed loop system between the reactor and the caustic storage tank. As the reactor is filled displaced vapors are forced back into the storage tank.
 - b) Then 700 - 900 gallons of mixed acid is pumped in. The mixed acid comes from a 10,000 gallon fiberglass tank equipped with a mixer. The acid is a mixture of one part virgin acid to eight parts of pickle liquor. The virgin acid is added to increase the acidity. Pure pickle liquor can be used but this produces more sludge then desired. The pickle liquor is stored in a 10,000 gallon fiberglass tank located next to the acid mixing tank, and the virgin acid is stored in a 5000 gallon rail car tank mounted on a concrete base surrounded by a berm. The amounts of caustic and acid used vary depending on the pH of each.

There is a closed loop system between the reactor and the acid mixing tank, but the acid mixing tank has a fiberglass lid laying on top which is not sealed down.

Since the oily odorous component has already been seperated from the caustic, the reactor is not suppose to be a source of odors unless there is a processing mistake, but since odors are detectable as far through the process as sludge in the dumpsters, this is not a valid assumption. Therefore, the unsecured lid on the acid mixing tank reduces the efficiency of the closed loop system between the reactor and acid mixing tank and may be a possible source of odors.

- c) Four 50 pound bags of diatomaceous earth are added as a filter acid.
- d) A nonionic polymer is added to increase coagulation and flocculation. 1906 nonionic polymer from American Cynamide is used. One half gallon of concentrate is added to 55 gallons. Then this is added to the reactor.

Settling State - 30 minutes

During this stage the power mixer is turned off and the mixture is allowed to settle.

Final State

The supernatant is drawn off and pumped into the municipal sewer system.

The slurry in the bottom 1/4 of the reactor is then pumped into a pneumatically operated plate and frame press. The continuous belt press has been removed from the property. The pump is an air operated diaphragm pump. As back pressure from the filter press increases the pump slows down. Before the pump slows to a complete stop it is turned off and the press is full. The press is then opened and the sludge dropped onto the floor. It is picked up by a front loader and dropped into a dumpster. Average operation is one press load per day for 20,000 gallons of caustic processed.

Yard

The yard may be the largest source of odor. Several spills in the past have soaked into the gravel. Approximately 2 inches of gravel have been removed in areas of larger spills and replaced with new gravel. Further digging will expose new odor sources and could lead to more complaints from the neighbors.

The contaminated gravel has been hauled away by Lockport Trucking to be landfilled..

A new berm has been built separating P.A.P. from Dravol Mechling property.

On February 25, 1981 a visit was paid to [REDACTED] who own a barge loading terminal on property adjacent to the P.A.P. facility, to ask if the situation has improved in the past few months. She said while no one has been sick recently the odors are noticable whenever the wind blows their direction. The employees have been issued respirators and a corporate safety officer flew in from Pittsburg, Pa. to give instruction on their proper use. She also informed me that the Near Southwest Homeowners Associations had held a public meeting on February 19, 1981 attended by the mayor, city manager, assistant city manager and director of Utilities. One of the main topics was complaints about the P.A.P. facility. The mayor allegedly said the city could take no legal action without being open to lawsuits and that the real problem lies with inaction on the part of the IEPA. It was alleged that councilmen Hackett and Weaver petitioned the IEPA to hold public hearings in Joliet, but these requests were denied.

A meeting was held by the author with [REDACTED] and [REDACTED] who confirmed the above meeting and requested citizen complaint forms. He was not aware if the complaints were recent or for problems in the past.

On March 3, 1981 a visit was made at the [REDACTED] who share a property line with P.A.P. [REDACTED] said that the odor problems were still interfering with operation of their facility and gave me a copy of a letter he sent to the IEPA on February 13, 1981. A copy is attached to this memo.

During the inspection on February 25, 1981 odors at the P.A.P. facility were minimal. They were a little stronger around a valve that

Mr. Matschke said, had a leak and would be replaced, but no odors were noticeable off the property.

On March 3, 1981 the odors were stronger and noticeable on Rt 6 and on Dravol Mechling property. Mr. Guidry attributed this odor to the storage tank manhole covers being removed to weld on the 6 inch inspection ports.

Not being a resident or working in the area the author is unable to determine the degree of caused by the odors at present. P.A.P. has been steadily working to improve the facility and control odors, but many of the people in the area feel that not enough has been done.

There is no one part of the facility that can be singled out as the definite source of the odor. So the author suggests the following as possible sources.

- 1) Yard - The gravel has soaked up oil from past spills. This gravel should be removed in a way which minimizes odor.
- 2) Truck Unloading - Though not a definite source of odor. A concrete unloading pad that could be washed down would be a good precautionary measure in case of any future accident.
- 3) Tanks - Present procedure allows the tanks to vent directly to the atmosphere when checking the fluid levels. Pressure gauges which could indicate the fluid level without opening the tanks should be installed.
- 4) Tank Pop Vents - These may cause a problem depending on how frequently they vent and for what period of time they are open.
- 5) Oil Removal - This procedure allows the tanks to vent to the atmosphere for 20 - 30 minutes at a time. A better procedure should be found.
- 6) Vapor Recovery System, between the reactor and acid mixing tank. Since the fiberglass lid on the acid mixing tank is not secured this is not a totally closed system. While this may not be the source of odors it has the potential of becoming one if oil is present in the reactor. The lid of the reactor should also be secured as part of the standard operating procedure. Closing the system totally may not be possible due to the gases created during the neutralization process, but should be looked into.
- 7) A checklist or operating procedure orientated towards odor control should be adopted. Employees working around odors become accustomed to them and soon fail to be aware of their existence. Since they do not notice the odor, aspects of the operation orientated towards odor control may seem useless or extra work. This may cause the employees to develop a lax attitude towards these aspects of the operation unless they are part of the required operating procedure.

MT/lb 141:1

cc: Miles Zamco
P. Orlinsky
Permit Section
File